RCE-550 Head Lock Gyro User Manual

ALIGN

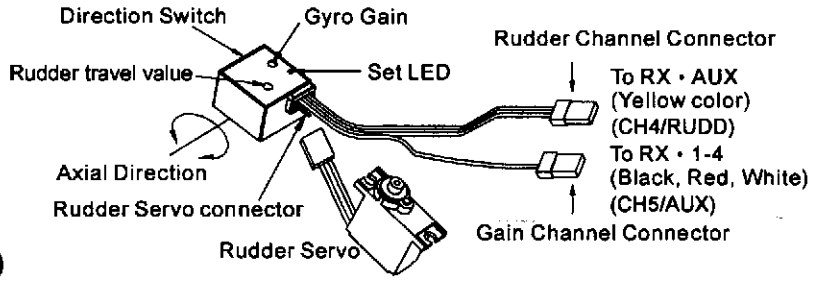
FEATURE

★Features the travel value adjustment of rudder servo(ATV), can avoid the servo running over the pitch range, to extend the servo life.
★Intelligent drift canceling Circuit design, highly precisely figure out the angular velocity inertia, more wide lock range, minimizing rudder neutral position drift when hovering.
★Dual Mode: Headlock and Standard Rate Gyro.
★Built-in drift cancel circuit.
★Temperature compensation circuit.
★Dual position Normal/Reverse switch for Rudder operating direction.
★Dual gain control.
★Apply to analog and most digital servos.
★Compatible Futaba PCM/JR SPCM/Hitec QPCM Receivers.

SPECIFICATION

★Voltage Used: DC 4.2~6V
★Power Consumption: Approx 33mA
★Operation Temp: -5℃ to +60℃
★Dimension: 23.5 x 21 x 15mm
★Weight: 12g
★Accessory: Adhesive foam x 1

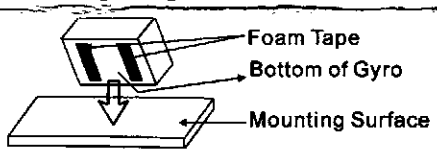
ILLUSTRATION

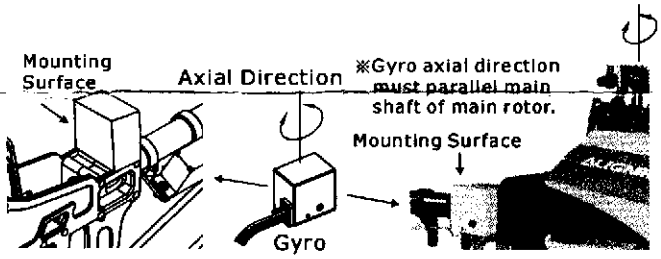


INSTALLING THE GYRO

1.Use the adhesive foam provided to attach the gyro to the chassis of the helicopter. The foam will provide a stable, vibration free mount to securely attach the gyro to the helicopter. Align recommends the gyro to be mounted as illustrated in the diagram. If not possible, install it in a similar fashion, away from any heat source or electrical source such as the motor, or ESC to avoid interference.

◎When installing the gyro, follow the steps regarding the use of adhesive foam.





A.Find a position at or near the center of mass (main shaft) of the R/C helicopter. Make sure to avoid any source of vibration, or to eliminate any vibration from the tail and rotorhead.

B.Clean the mounting surface and the bottom of the gyro using alcohol, and allow to dry completely.

C.Using the two pieces of adhesive foam provided, attach one piece at each end to the mounting surface of the gyro (vertical side in this illustration), and then adhere the gyro to the mounting surface. Do not use one piece of adhesive foam that covers the whole bottom of the gyro.

IMPORTANT: Do not use double-sided tape without foam padding.

2.Follow illustration for installing the gyro to receiver and rudder servo.

Single Mode Connections:(Only Support "headlock Mode" when single mode connection is established.)

Step 1: Connect the rudder servo to the"SERVO" connection at the gyro. An extension may be necessary.

Step 2: For Hitec, Futaba PPM/PCM Radio Transmitter:Connect the cable from"X・1-4" of the gyro to the"Channel 4" of the Recevier. For JR PPM/SPCM/ZPCM Radio Transmitter: Connect the cable from"RX・1-4" of the gyro to the"RUDD" of the Receiver.

Dual Mode Connections:
Step 1, Step 2: same as Single Mode Connections.
Step 3: For Hitec, Futaba PPM/PCM Radio Transmitter: Connect the cable from "RX・AUX" of the gyro to " CHANNEL 5" of the receiver.
For JR PPM/PCM Radio Transmitter: Connect the cable from "RX・AUX" of the gyro to "AUX2" or "AUX3" of the receiver.

Table of Connections :

Radio type	RX・1-4 connect to receiver's	RX・AUX connect to receiver's
JR PPM/SPCM	"RUDD"	"AUX 2"or"AUX 3"
Hitec、Futaba PPM/PCM	"CH4"(RUD)	"CH5"
JR ZPCM	"RUDD"	"AUX 2"

SETTING UP

1.Switch on your transmitter

2.Switch on your helicopter's receiver and DO NOT move the helicopter at all before the gyro initialization light is illuminated. (This can take several seconds to complete)

3.Configure the settings on your transmitter:

★ATS ★Throttle to rudder mixing ★Pitch to rudder mixing
★Pilot authority mixing ★Rudder to gyro mixing ★Revolution mixing

4.Set the direction switch A◂ ▸ B on the gyro to make the tail pitch move in the right direction to Compensate for tail yaw.

5.Gain Control
Single Mode: Adjust the gain control - ▸+on the gyro (by using the small screwdriver to tune the rotary switch), To obtain maximum tail performance and stability. Adjust the gain as high as possible until it begins to oscillate (wag). Reduce the gain a little bit just to eliminate the wag.

Dual Mode: Adjust the gain control on the transmitter ATV setting or GYRO setting to obtain maximum tail Performance as described above. (Different transmitters have different setting methods, please read the original instruction manual for more detail.)

6. Travel value adjustment of rudder servo (ATV): Pitch range of the helicopter is limited. The travel value failure will affect the gyro performance. Travel value over may cause the servo damaged. Use a small screw driver to adjust the LIMIT button on the gyro. " + " for increase the travel value. " - " for decrease the travel value. Properly adjust it to the maximum of pitch range.

PRE-FLIGHT TRIM ADJUSTMENT OF RUDDER

In order for the gyro to function properly, it is crucial to trim the gyro properly.

1.Set the rudder trim (and sub-trim if available) to neutral.

2.Identify the gyro gain switch position on your transmitter which gives the standard gain mode and Heading-lock mode. This can be done by observing the rudder servo behaviour by applying full rudder Command followed by a release. In standard gain mode, the rudder servo will rapidly return to the neutral position when the rudder stick is released. In Heading-lock mode, the rudder servo will stay in the same position when the rudder stick is released.(Does not apply to Single Mode connection)

3.Set the rudder trim (or preferably the sub-trim) so that the creep in the rudder servo is minimized. You will find that there will still be some minor residual creeping for normal situation.

4.Once this trim position has been found, no further adjustment should be needed. However, some slight adjustment of the tail control linkages may still be needed in order to reduce any offset effects in the standard mode. (This could only be done through flight testing).

5.Select the heading-lock mode and hover the helicopter.

6.Check for any tendency for tail to oscillate (wag). Reduce the gyro gain if wag is seen. Conversely, increase the gain if no wag is seen. (The goal is to use the highest possible gain setting without introducing tail wag).

7.Observe any trim offset in the tail and correct with the rudder trim.

8.Select the standard gain mode and repeat the exercise. In this case, any offset effects should be corrected by adjusting the tail rotor linkages.

IMPORTANT :

A.If after adjusting the gyro gain with the transmitter and the tail is still hunting, slightly move the tail control link to a different position on the rudder servo arm (move toward inner hole or outer hole), or if the rudder servo moves too slowly, recommend using a servo which has the speed within 0.12 Sec/60°.

B.In order to let the gyro adapt to the temperature and humidity of the flying field, it is strongly recommended to leave the helicopter and gyro in the environment for 5-10 minutes, then turn on the switch to use them Afterwards.